



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------|------------------------|
| 09/658,241 | 09/08/2000 | Donald L. Hohnstein | 1822/USW0601PUS | 3022 |
| 22193 7590 10/18/2007 QWEST COMMUNICATIONS INTERNATIONAL INC LAW DEPT INTELLECTUAL PROPERTY GROUP 1801 CALIFORNIA STREET, SUITE 3800 DENVER, CO 80202 | | | EXAMINER TRINH, TAN H | |
| | | | ART UNIT 2618 | PAPER NUMBER |
| | | | MAIL DATE 10/18/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/658,241

Applicant(s)

HOHNSTEIN ET AL.

Examiner

TAN TRINH

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19,22-29 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19,22-29 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Art Unit: 2618

DETAILED ACTION

1. In view of the appeal brief filed on 07-18-2007, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

A handwritten signature in black ink, appearing to read 'Matthew Anderson', with a long horizontal line extending to the right.

MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-14, 16-19, 22-28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbin (U.S. Patent No. 5,488,737) in view of Fette (U. S. Patent No. 5,612,948).

Regarding to claims 1, 11 and 31, Harbin teaches a wireless communication system (see fig. 1) comprising: a plurality of access points (see fig. 1A, base stations 12s), each access point (12) having at least one omnidirectional antenna (15) forming a substantially uniform coverage area around the access point (12) (see fig. 1A-B, base stations 12s, omnidirectional antenna 15, col. 7, lines 61-67); and a plurality of subscriber units (16 or 17) (see fig. 1A), each subscriber unit having at least one omnidirectional antenna forming a omnidirectional directional beam coverage area (fig. 1A, col. 4, lines 42-49); wherein each subscriber unit (16 or 17) communicates with a particular access point (12) through transmissions between the subscriber unit omnidirectional antenna and the omni-directional antenna (15) for the particular access point (see figs. 1-2, col. 7, lines 61-67). Harbin teaches the subscriber unit (remote station 16) having at least one omnidirectional antenna forming a directional coverage area (see col. 7, lines 30-37). But Harbin does not mention each subscriber unit having at least one directional antenna forming

Art Unit: 2618

a directional coverage area and the directional coverage area selectable from a plurality of directional coverage areas provided by the subscriber unit (see fig. 1A, col. 4, lines 42-49).

However, Fette teaches each subscriber unit (16) having at least one directional antenna forming a directional coverage area (14) (see fig. 1 and 5, subscriber unit mobile station 16, with directional antenna 56, directional coverage area 14, col. 3, lines 1-6 and col. 5, lines 34-43), and the directional coverage area selectable from a plurality of directional coverage areas provided by the subscriber unit (see fig. 3, and 5, col. 5, lines 58-64). In this case the BS Access point 12 of Harbin teaches the omnidirectional antenna (15), and Fette teaches each subscriber unit mobile station 16, having at least one directional antenna 56 forming a directional coverage area (14), and transmissions between BS Access point 12 and mobile station 16.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of combination of Harbin with Fette, in order to provide high gain directional antenna array and beams projection in different direction to reduce interference (see suggested by Fette on col. 3, lines 61-64 and col. 5, lines 37-41).

Regarding to claim 14, Harbin teaches a method of wireless communication (see fig. 1A), comprising: the transmitting downlink information in a substantially uniform coverage area (19) around each of a plurality of access points (12s) (see fig. 1A, col. 7, lines 61-67), receiving the downlink information at a subscriber unit (16 or 17) (see fig. 1A-B, col. 7, 61-67). In this case, the subscriber unit (16 or 17) is receiving information from AP 12. Transmitting uplink information in a focused coverage area from the subscriber unit (see col. 7, lines 17-29); and receiving the uplink information at one of the access points (12s) (see figs. 1A, col. 31-37).

Art Unit: 2618

Routing information between the plurality of the access points (12s) and sending the information to an access point (12) in communication with the distribution point (18) (see fig. 1A, col. 10, lines 29-51), if the information is destined for a subscriber unit in communication with the access (see col. 10, lines 38-67). But Harbin does not mention the otherwise forwarding the subscriber to another distribution point in communication with the distribution point.

However, Fette teaches for forwarding the subscriber to another distribution point in communication with the distribution point (see Abstract lines 5-9, and col. 4, lines 36-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of combination of Harbin with Fette, in order to provide actual allocation are communication during a transmit and receive allocation sub-frame (see suggested by Fette on col.4, lines 61-63).

Regarding to claim 2, Harbin teaches a routing network interconnecting the plurality of access points (12) (see Fig. 1A, routing network (18) interconnecting base stations 12s, col. 7, line 1-29).

Regarding to claim 3, Harbin teaches wherein the routing network comprises a distributed network of distribution points (18 and 20) (see fig. 1, col. 7, lines 16-29).

Regarding to claims 4 and 24, Harbin teaches wherein at the distribution point is in the same location as one access point (see fig. 1A, distribution point 18 and access point 12, col. 7, lines 16-29).

Art Unit: 2618

Regarding to claims 6 and 19, Harbin teaches wherein transmissions between the subscriber unit (16) and the access point comprise packet information (see fig. 1A and 3, col. 10, lines 29-36). In this case, the NCC 18 is packet data network can provide the best quality message transmissions between the subscriber unit (16) and the access point.

Regarding to claim 7, Fette teaches the subscriber unit (16) is a terminal network controller (62) comprising, at least one interface (60), each interface providing access to the wireless communication system (10) (see fig. 5, col. 5, lines 34-43).

Regarding to claim 8, Fette teaches the terminal network controller further comprises a routing switch routing information packets to and from the at least one interface (68) (see fig. 3, col. 5, lines 27-57).

Regarding to claims 9 and 17, Fette teaches the directional antenna (56) comprises a plurality of antenna patches (58), the subscriber unit (16) selecting at least one antenna patch (58) as the directional antenna (56) (see fig. 5, col. 34-42).

Regarding to claim 10, Fette teaches the directional antenna (56) is operative to be positioned to optimize transmissions between the subscriber unit (16) and the particular access point (12) (see fig. 1 and 5, col. 2, lines 65-col. 3, 6 and col. 5, lines 34-52).

Art Unit: 2618

Regarding to claim 12, Harbin teaches at least one access point (12) has both at least one omnidirectional antenna (15) and at least one directional antenna (14) (see figs. 1A-B, omnidirectional antenna 15, and directional antenna 14, col. 7, lines 61-col. 8, lines 9).

Regarding to claims 13 and 28, Harbin teaches wherein access points transmit from omnidirectional antennas (15) at a first frequency and from directional antennas (14) at a second frequency different than the first frequency (see figs. 1B, the omnidirectional antennas (15) is TX antenna with TX frequency and directional antennas (14) is RX antenna is used the RX frequency so that the frequency is different fro each other antenna).

Regarding to claim 16, Fette teaches the transmitting in a focused coverage area comprises transmitting from a directional antenna (56) and receiving the downlink information comprises receiving at the directional antenna (56) (see fig. 5, col. 5, lines 34-43). In this case, the mobile unit 16 is using directional antenna (56) for transmit and receives on signal 58.

Regarding to claim 18, a method of wireless communication as in claim 16 further comprising aiming the directional antenna to improve receiving the downlink information. (This is a well known, since the antenna has to point and aim on the direction of the antenna pointing the cover area to improve the receiving downlink information).

Art Unit: 2618

Regarding to claim 22, Harbin teaches wherein routing information comprises transmitting the information between each access point (12) and one of a plurality of distribution points (18) (see fig. 1A col. 29-51).

Regarding to claim 23, Harbin teaches wherein the transmitting the information comprises wireless transmission (see fig. 1 A, col. 1, lines 17-21).

Regarding to claim 25, Fette teaches the routing the downlink information to one of a plurality of interfaces (60) at the subscriber unit (16) (see fig. 1A, col. 5, lines 34-43).

Regarding to claim 26, Fette teaches the transmitting downlink information in a focused coverage area (14) around each of a plurality of access points (12s) receiving the downlink information at a subscriber unit (16); transmitting uplink information from a substantially uniform coverage area (14) around the subscriber unit (16); and receiving the uplink information at one of the access points (12) (see fig. 1, col. 2, lines 65-col. 3, lines 40).

Regarding to claim 27, Harbin teaches at least one access point (12), both transmits downlink information in a focused coverage area (19) and transmits downlink information in a substantially uniform coverage area (19) (figs. 1A col. 7, lines 17-37).

4. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fette (U. S. Patent No. 5,612,948) in view of Allen (U.S. Patent No. 7,185,097).

Regarding to claim 29, Fette teaches a plurality of access points (12s) (see fig. 1), each access point (12) transmitting and receiving information packets (see fig. 1, col. 4, lines 13-65), each information packet transmitted over a substantially uniform coverage area around the access point (see fig. 1, col. 4, lines 66-col. 5, lines 33), a network of distribution points in communication with the access points the distribution points (see col. 2, lines 38-col. 3, lines 10), and a plurality of subscriber units (16) (see fig. 1, subscriber units (16) in area (14), each subscriber unit (16) transmitting and receiving information packets (see fig. 5, col. 5, lines 34-42) transmitting and receiving link (58) each subscriber unit (16) transmitting information packets over a focused directional coverage area (14) see fig. 1, col. 5, lines 5-64); Fette teaches the routing information between the access points base upon a forward error correction (FEC) for each access point (see fig. 5, FEC controller 76, and routing information 78 with the percentage FEC coding, and fig. 6, for communication range. But Fette does not mention the routing information packets between the access points and the forwarding equivalence Class (FEC).

However, Allen teaches routing information packets between the access points and the forwarding equivalence Class (FEC) (see fig. 5, col. 18, lines 40-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Fette with Allen, in order to provide user a higher-layer packet depend on the configuration of the router or distribution points, and destination IP address with the Quality of service class is often used.

Art Unit: 2618

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbin (U.S. Patent No. 5,488,737) in view of Fette (U. S. Patent No. 5,612,948) further in view of Komara (U.S. Patent No. 6690662).

Regarding to claim 5. Harbin teaches wherein at least one access point (12) is in wireless communication with the routing network (18) through wireless network backbone (20) (see fig. 1A). But Harbin or Fette fails to teach backhaul antenna.

However, Kimara teaches wireless communication with the routing network through backhaul antenna (see figs. 3 and 4, backhaul antenna 330 or 330-N-12, col. 6, lines 36-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching Harbin and Fette with Kimara, in order to provide user to routing data through wireless network backbone with backhaul antenna.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbin (U.S. Patent No. 5,488,737) in view of Fette (U. S. Patent No. 5,612,948) further in view of Cunningham (U.S. Patent No. 4144496).

Regarding to claim 15, Harbin teaches wherein the transmitting in the substantially uniform coverage area around each of the access points comprises transmitting from an omnidirectional antenna and receiving the uplink information comprises receiving at the directional antenna (see figs. 1A-B). But Harbin Fette does not mention the access points comprises receiving the uplink information comprises receiving at the omnidirectional antenna.

However, Cunningham teaches wherein the transmitting in the substantially uniform coverage area around each of the access points comprises transmitting from an omnidirectional

Art Unit: 2618

antenna and receiving the uplink information comprises receiving at the omnidirectional antenna (see figs. 1 and 6, omnidirectional antenna 30 and 36, col. 16, lines 5-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of combination of Harbin and Fette with Cunningham, in order to reduce interference.

Conclusion

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314**).*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

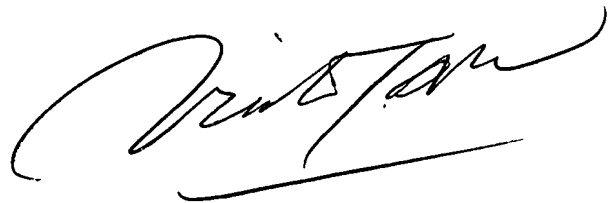
Art Unit: 2618

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
October 13, 2007

PATENT EXAMINER
TRINH, TAN

A handwritten signature in black ink, appearing to read 'Tan H. Trinh', with a long horizontal flourish extending to the right.